RAILWAY ACCIDENTS AND "SAFETY FIRST"

Ever since railway operations started, railway accidents have been a subject of discussion and criticism, and doubtless they will continue to be discussed and the railroads and their employees will continue to be criticized until accidents are eliminated or reduced to a minimum and responsibility for them properly distributed. A significant and effective move in the right direction is resulting from the present co-operative effort between the men and the managements of the railroads, and it seems that the solution of the problem of accident-prevention is well underway.

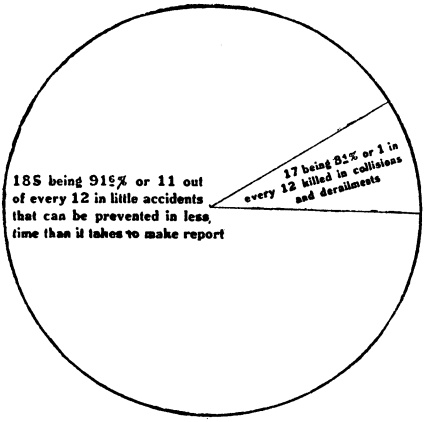
In the year ending June 30, 1913, the last year for which we have accident statistics, there were 10,964 persons killed and 200,258 injured on the railroads of this country, an increase of $3\frac{1}{2}$ per cent in killed and 18 per cent in injured over the previous year. The Interstate Commerce Commission classified these accidents as follows:

	Killed	Injured
Passengers	403	16,539
Employees	3,715	171,417
Others, not trespassers	1,288	5,992
Trespassers	5,558	6,310

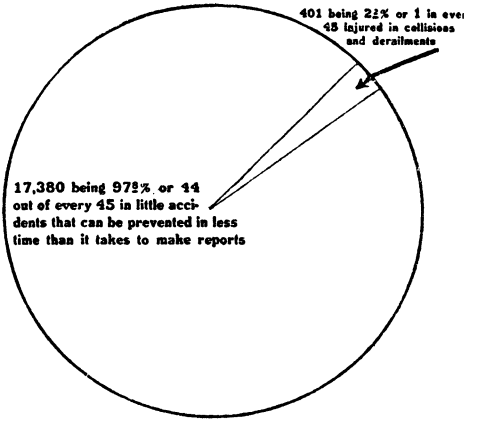
Railway accidents, like accidents in the factories, in the mills, in the mines, in the streets, and in the homes, result largely from carelessness, or, perhaps, admitting ourselves to be a nation of chance-takers, we might better call it thoughtlessness. A few of the accidents result from defective track equipment, tools, machinery, or bad conditions or methods; a few, but only a few, are train accidents, such as collisions and derailments.

Every death or injury of a passenger in a train accident is a just cause for complaint against, or criticism of, the railroads. There were 181 passengers killed and 8,662 injured in train accidents during the year ending June 30, 1913; 222 passengers were killed and 7,877 were injured from other causes, such as jumping

off moving trains, crossing the track in front of approaching trains, falling over obstructions left in the aisles of cars by the victims themselves or by other passengers, blows from falling windows, and other causes too numerous to mention. Nearly all of them were preventable by the exercise of a little care on the part of the passenger. The railroads, I believe it is generally conceded, are doing everything their revenues will permit to reduce the number of deaths and injuries to passengers, as well as to everyone else,



Employees killed on The Chicago and North Western Railway, years ending June 30, 1912, 1913, and 1914.

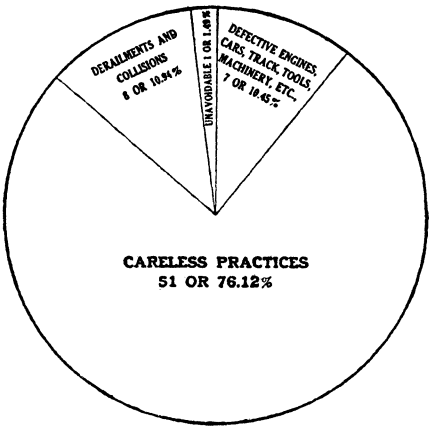


Employees injured on the Chicago and North Western Railway, years ending June 30, 1912, 1913, and 1914.

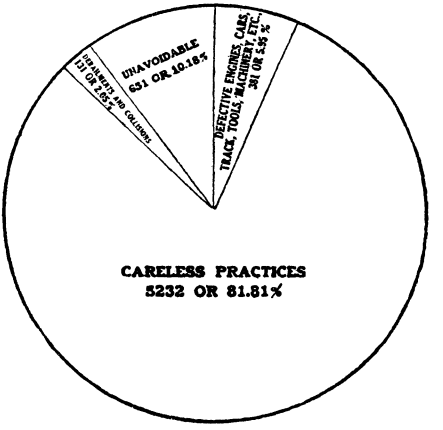
and to make the transportation absolutely safe. During the year referred to the railroads transported 1,018,283,000 passengers; that is, 2,526,757 for every one passenger killed and 61,539 for every one passenger injured. It is interesting to know that in the same year 299 companies, operating 120,901 miles, carried 409,808,488 passengers without a single death in a train accident. The record for 1914 will probably be even better.

During the year ending June 30, 1913, there were 569 employees killed and 7,051 injured in train accidents. The balance of the 3,715 killed and 171,417 injured were killed or injured in coupling accidents, by obstructions overhead or at the side of the track, by falls from cars and engines, and in little accidents, most of which could have been prevented by the injured man or his co-worker in less time than it takes to make a report of the accident.

It is perhaps not improper at this point to call attention to the fact that of the 35,000 workmen killed and the 2,000,000 injured every year in carrying on the industries of this country (one killed every sixteen minutes of every hour of every day in the year, and four injured every minute of every hour in the day), only one-tenth of the killed and one-sixteenth of the injured are railway employees; the other nine-tenths and fifteen-sixteenths are killed and injured in the mines, factories, mills, shops, stores,



This diagram shows the causes of accidents in which employees were killed while on duty during the year ending December 31, 1913.



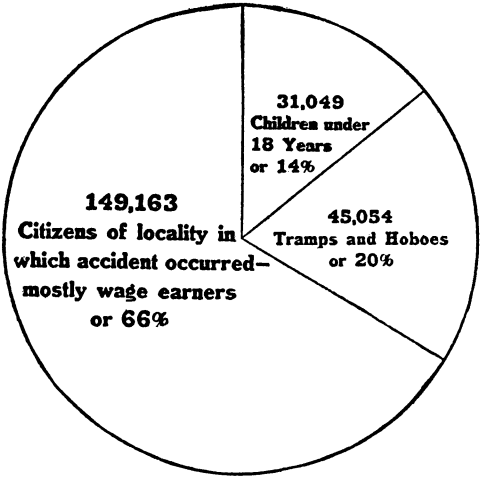
This diagram shows the causes of accidents in which employees were injured while on duty during the year ending December 31, 1913.

and other industries. And of the railroad employees killed and injured, 414, or 11 per cent of the killed, and 113,620, or 66 per cent of the injured, are killed or injured in the shops, stations, round-houses, and on the tracks, in accidents not involving train operation, or in the non-hazardous part of the work. These are classified by the Interstate Commerce Commission as Industrial Accidents.

On the North Western Railway during the last three years 8.4 per cent of the employees killed, or one in every twelve, were killed in collisions and derailments, commonly called train accidents; 91.6 per cent, or eleven out of every twelve, were killed in little accidents; 2.2 per cent of the employees injured, or one out of every forty-five, were injured in train accidents, and 97.8 per cent, or forty-four out of every forty-five, were injured in little accidents,

preventable by a minimum expense of time and effort. If we can wipe out the little accidents we shall go a long way toward achieving our end of accident elimination.

Of the 10,964 persons killed on the railroads, 5,558—over one-half of the total—were trespassers, and of the 6,310 trespassers injured nearly every one had a serious permanent disabling injury, such as the loss of a leg or arm. Fifteen times as many trespassers as passengers were killed, and twenty-eight times as many as



During the last twenty-four years

108,009 persons killed
119,257 persons injured

225,266

walking on railroad tracks and flipping on cars in the United States.

passengers killed in train accidents. During the past twenty-four years there have been in the United States 108,009 persons killed and 117,257 persons injured walking on railroad tracks or flipping on cars. Of these, 149,163, or 66 per cent, were citizens of the locality in which the accident occurred and mainly wage-earners; 31,049, or 14 per cent, were children under eighteen years of age; 45,054, or 20 per cent, were tramps and hoboes. The blame for such accidents lies in our lack of laws penalizing trespassing on

the tracks and cars and in our neglect to enforce the laws we have. It is, I believe, a conservative statement to say that it would cost the states, counties, and municipalities less to enact and enforce trespass laws than it does to pick up and bury the dead, hold inquests on the bodies, and care for the cripples.

The public directs severe criticism against the railroads each time a passenger is killed, though the road has done its best to avoid the accident by the construction of the finest sort of roadbed, by the equipment of trains and tracks with every known kind of safety appliance and device, and by the employment of only experienced crews. But the death of a man, woman, or child walking the track produces only a feeble protest and no consciousness on the part of the public of self-blame, although the public, through the state, has done absolutely nothing to protect the man from endangering his life by walking on the tracks. We claim as a nation an extreme sensibility to the sacredness of human life, but we have let 5,558 persons be killed in a single year from causes we have done nothing to remove. Undoubtedly the figures for the succeeding years will be as large until stringent and effective state and national laws against trespassing are passed and enforced.

The accidents at highway crossings during the year ending June 30, 1913, resulted in 1,125 deaths and 3,080 injured. These accidents, especially automobile accidents, are unfortunately becoming more frequent and more serious every year, and yet nearly every one of the automobile accidents could have been avoided by the exercise of a little care on the part of the driver. All he has to do is to stop, look, and listen before crossing the track; the pedestrian needs only to take the same precautions. It is an easy thing for either of them to stop and there is no danger connected with it, as there sometimes is to the driver of a team whose horses may be frightened by the approaching train. The railroads do not pretend that they are never at fault when highway accidents occur; the companies know that their men are human and make mistakes, that sometimes they neglect to give warning of the approach of a train, exceed the speed limit, or fail to do the things required of them by laws and rules. Nevertheless it must be said that bells, flagmen, signs, and gates seem to have but little

effect in preventing this class of accidents, because the warnings are so recklessly disregarded. Observations made in three different parts of the country showed that less than 5 per cent of the pedestrians or people driving automobiles or other vehicles stopped to look and listen before crossing the tracks at highways. Some day, perhaps, the law will require people to stop before crossing; such a law, if enforced, would practically end this class of accidents.

For the last few years railroads have been making a scientific study of accident-prevention and they have turned to every phase of railroad construction, equipment, and operation. They commenced with the men, as the men, and not the engines, cars, tracks, or machines, are the important part of the railroad. Every man, therefore, that enters the engine, track, or switching service—and many of the others—is required to pass a physical examination to determine whether or not he has normal vision, hearing, color perception, and is physically able to perform the duties of the position for which he is applying. The North Western Railway inaugurated this plan some twenty years ago.

The roads have put in very generally either automatic signals or manual block signals for the protection of trains, and surprise tests have been made to see if the signals are observed; at railroad crossings interlocking plants have been installed. Highway crossings in cities and villages and frequently in the open country are protected by gates, flagmen, or electric bells, sometimes by more than one device. At obscure and diagonal crossings in the country additional danger signs are being erected to warn travelers on the highway that they are approaching a railroad.

All locomotives, cars, tools, and machinery are designed to do their work not only efficiently but safely; all gearing and dangerous places are covered or guarded. Cars used for the transportation of passengers are now constructed of steel; they have automatic couplers, air brakes, vestibule platforms; they are lighted by gas or electricity, and are made as safe and comfortable as possible. Engines also have air brakes and electric headlights. Tracks, bridges, and buildings are being constructed of the best and heaviest material, so as to be able to stand any strain or weight. Tracks are being elevated or depressed at many places, thereby eliminating

grade crossings and substituting crossings under or over the track; at many places where this is not practicable bridges or viaducts are built over the tracks. Many other things have been done and are being done, for safety methods are being constantly studied and safety devices perfected.

For all practical purposes the only accidents that can now be materially reduced on the railways without the assistance of the public are those resulting in the death or injury to employees, and during the past four years great efforts have been made to accomplish something in this direction. Enthusiastic co-operation on the part of the men and the managements have crowned these efforts with remarkable success. The movement bringing about that result is now generally known as "Safety First," and it stands for:

The conservation of human life
The making of safety men as well as safety things
The elimination of the chance-taker
Greater safety and regularity

The conservation of man's most precious possessions—life and limb—must be looked on as of infinitely greater importance than the conservation of our water power, our land, timber, minerals, or coal.

The management of the Chicago and North Western Railway recognized, perhaps earlier than most other employers of labor, the great suffering caused by avoidable accidents resulting in death and injury to its men, its passengers, and to others. It was determined, about four years ago, to inaugurate a movement to reduce such accidents, both as a matter of humanity and to increase the efficiency of the organization. We recognized that every time a capable, experienced employee was killed or injured it not only brought suffering and sorrow to himself and his family, but necessitated the employment of a new and inexperienced man in his place, thereby increasing the risk to the other men in the service and at the same time decreasing the efficiency of the organization, frequently very seriously.

In the development of accident prevention we first sought the co-operation and assistance of the men from whose ranks the killed and injured came. It was felt that their sympathetic help could

be secured if they really understood the basic idea and the ultimate aim; and to that end the men were made the controlling factors in the movement. In May, 1910, we commenced work by holding meetings on all the divisions of the system, first of the division officers and foremen, and afterward of the men, where we explained what we intended to do and the necessity for it. We showed:

That it was the men and not the stockholders, officers, or foremen who were killed and injured.

That it was the men and their families who would be most benefited by the prevention of accidents.

That the golden rule in railroading—"It is better to cause a delay than to cause an accident"—should be observed.

That it actually took less time to prevent an accident than it did to report one.

That when we needed new men, if we had fewer accidents on our road than other lines had we should have the pick of all the best railroad men in the country.

That we wanted to get rid of the careless habit and acquire the "safety" habit.

That we wanted to stop making cripples, widows, and orphans.

That the greatest risk a careful man runs is the risk of injury from some careless fellow-worker, and that when the careless man will not change his ways and try to do better he should be dismissed from the service.

That *every accident* is a notice that something is wrong with the man, the plant, or the methods, and should be immediately investigated by persons in charge of the work to ascertain the cause and to apply the remedy.

That if we could reduce the accidents 50 per cent the assessments for life and accident insurance which the men are paying ought to be reduced in the same proportion.

Division Safety Committees were then organized on each division of the road, composed of the superintendent, division engineer, and division master mechanic, and one or more representatives from each class of labor, such as engineers, firemen, conductors, brakemen, switchmen, signal men, trackmen, station men, bridgemen, carmen, telegraph operators, train dispatchers, and linemen.

Terminal Safety Committees were organized in the large terminal yards, the members being yardmasters, switchmen, engineers, firemen, trackmen, and carmen. Shop Safety Committees were also organized, composed of all classes of labor employed in the shops, the men who were doing the work and getting hurt (not the bosses) being always the large majority of membership. Local Safety Committees, composed of a representative of each class of labor employed in one locality, were formed at outlying points. These committees meet once each month. The men serve not less than six months nor more than twelve, and they are paid for their time and expenses while attending the meetings.

The Central Safety Committee was next organized, composed of eleven general and division officers, representing all branches of the service. To this central service all division, shop, terminal, and local committees report, and to it all changes in standards, rules, and customs are submitted; if approved they are referred to the management for adoption. All matters local to the divisions, shops, and terminals are disposed of by such committees without reference to the Central Safety Committee.

On a railroad 8,419 miles long, running through nine states, it necessarily took some time and considerable work to lay the foundation for such an organization and to get it properly started, but on January 1, 1911, the work was practically completed. During the year 1911, the first year the system was in operation, 5,619 different subjects were brought to the attention of the various committees and acted upon. During the years 1912 and 1913, 10,159 suggestions were made by these committees, of which 9,772 were adopted. In 1911, 1912, and 1913, 188 recommendations made by the different Division, Shop, Terminal, and Local Safety Committees for changing standards, rules, methods, or conditions were approved by the Central Safety Committee, adopted, and put into effect by the management of the company.

Every member of the committees is furnished with a "Safety" button as his badge of office, and he is made to feel that in the meetings all men are on an equality, that each man comes there as a committeeman, not as officer or employee, and that all are full partners in the enterprise and responsible for its success.

Suggestions that might bring about greater safety and efficiency in operation have been encouraged and even solicited. Postal cards were furnished to the members of the committees and to employees generally on which immediate notice could be given to the chairmen of committees of dangerous conditions and practices; this permitted prompt action without waiting for the meeting of the committee. Meetings have been held at various points on the system to which the general public have been invited, for the purpose of interesting them in the safety movement. The company has also prepared and sent to all the school and municipal authorities along its lines what is known as a trespass circular, fully illustrated, calling attention to the great number of men, women, and children killed or injured while trespassing on the railroad tracks. It has been hoped that the school authorities would in turn instruct the children and thereby prevent some of these unnecessary accidents.

After the work was well under way it was decided to award a banner to the division having the fewest accidents in proportion to the number of employees and the train mileage. In 1910 the Central Safety Committee awarded this banner to the Sioux City Division, in 1911 and 1913 to the Wisconsin Division, and in 1912 to the East Iowa Division. Safety rules for employees engaged in the shops and on the tracks were prepared by the Central Committee, printed in many languages, and furnished to every employee in these departments.

There are now about 913 officers and men serving on these committees. Surely 913 pairs of eyes, trained to look for defective conditions and practices, can do more than the eyes of one officer or fifty officers, and the results that have been attained during the fifty-two months of the safety organization's existence (during which time the earnings and mileage of the company have increased) show a gratifying improvement in the following particulars: removal of obstructions in yards, station platforms, shops, and roundhouses; installation of additional light to secure better working conditions; erection of railings at dangerous places; the covering of gearing, belts, and moving parts of machines; the blocking of frogs and guard rails; abolition of dangerous practices

and customs; improved inspection of cars, engines, and machines, which has meant both greater safety and increased efficiency.

A marked reduction has also been shown in the accident record, if we compare the actual number of accidents that have occurred in the last fifty-two months with the number that would have occurred in that time on the basis of the record for the year ending June 30, 1910, the last year prior to the organization of the safety committees. In the following statistics every accident is counted where the injured person lost more than one day's time:

	Number	Percentage
Decrease in the number of employees killed	162	34.3
Decrease in the number of employees injured	9,931	26.5
Decrease in the number of passengers injured	814	20.5
Decrease in the number of outsiders killed	200	19.1
Decrease in the number of outsiders injured	206	7.7

This not only means that in the last fifty-two months, we have had 360 fewer reports of people killed and 10,951 fewer reports of people injured than we would have had during the period on the basis of the earlier record, but it means that 360 times we were saved the call of the priest and the undertaker, that 360 times perhaps was the making of widows and orphans prevented and sorrow and destitution warded off; it means that 10,951 fewer men were injured, many of whom would have been permanently disabled; that just that many times we were saved the call of the doctor. By preventing the death or injury of 10,093 members of our own railroad family we avoided just that many times increasing the risk to other employees, to our passengers, and our patrons which the substitution of green men for experienced men would have entailed; and just that many times did we avoid decreasing the efficiency of our organization. This result has been obtained because we have learned that accidents are not inevitable, as we had commenced to believe, but can be prevented by care and forethought. The success of the work has incited seventy-six other railroads, with a length of 197,505 miles, to adopt the North Western Safety First organization, or one very similar to it.

Every year about fifteen hundred North Western men serve on these safety committees and so become more or less imbued with the idea that safety must be *first.* Eventually we hope to have every permanent employee on the road serve as safety committeeman. We believe that this must certainly bring about a higher regard for life and limb and far greater safety and regularity in operation. Once or twice each year the chairman of the Central Safety Committee and as many of the members of that committee as possible visit each Division, Shop, and Terminal Committee, spend a day or two with them, attend their meetings, take part in the transaction of the committee's business, and do everything possible to keep up the interest and enthusiasm of the men.

The actual value of the "Safety First" movement in dollars and cents may be interesting to know. The average cost of railroad accidents in this part of the country is $113.93 per case; each accident prevented, then, means a saving of $113.93. In the fifty-two months of our organization's work on the North Western Railway, that road, with an increase of 450 miles in length and from 10 to 12 per cent in earnings, has had 11,311 fewer accidents. That means a saving of $1,288,662.23. When the movement started the number of accidents was increasing by leaps and bounds; now it is decreasing. But "Safety First" was started to save lives, to increase the safety and regularity of operation, to improve working conditions, to create better feeling between the officers and men, and, incidentally, to save dollars. How much it has done to increase safety and regularity of operation and better feeling no one can tell, but everyone agrees that it is much. The Interstate Commerce Commission in its 1912 Report has this to say:

> Great possibilities in the direction of a solution of the problem of accident prevention lie in the so-called Safety Committees which have been organized on many roads. These committees are composed of officers and employees who co-operate in striving to eliminate accidents due to failure of men properly to perform their duties. By making "Safety First" the dominant idea in the minds of employees, and continually pointing out methods for its attainment, an important step in the right direction is taken.

R. C. RICHARDS

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